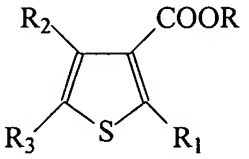
CLAIMS

1. A solid catalyst component for the polymerization of olefins comprising Mg, Ti, halogen and an electron donor selected from thiophene derivatives of formula (I)



(I)

wherein R is a branched alkyl group, R_1, R_2 and R_3, same or different, are hydrogen, halogen, R^4, OR^4, $COOR^4$, SR^4, NR^4_2 and PR^4_2, wherein R^4 is a linear or branched C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} alkylaryl or C_7-C_{20} arylalkyl group, optionally containing one or more heteroatoms, and two or more of said R_1-R_3 groups can also be joined to form a cycle, with the provisions that at least one of R_1 and R_2 is $COOR^4$ and that when R_2 is COO-i-octyl and R is i-octyl, R_1 and/or R_3 are different from hydrogen.

2. The catalyst component according to claim 1 in which in the thiophene derivatives of formula (I) R is a primary branched alkyl having from 4 to 15 carbon atoms.
3. The catalyst component according to claim 1 in which in the thiophene derivatives of formula (I) R_2 is a COOR group.
4. The catalyst components according to claim 3 in which R_1 and/or R_3 is a C1-C20 alkyl group.
5. The catalyst component according to claim 1 in which in the thiophene derivatives of formula (I) R_1 is a COOR group.
6. The catalyst components according to claim 5 in which one of R_2 and R_3 of formula (I) are different from hydrogen.

7. The catalyst component of claim 1 comprising a titanium compound having at least a Ti-halogen bond and the thiophene derivatives of formula (I) supported on a Mg halide in active form.
8. A catalyst for the polymerization of olefins comprising the product of the reaction between:

   - a solid catalyst component according to any of the claims 1-7;

   - an alkylaluminum compound and, optionally,

   - one or more electron-donor compounds (external donor).
9. The catalyst according to claim 8 in which the alkylaluminum compound (b) is a trialkyl aluminum compound.
10. Process for the (co)polymerization of olefins carried out in the presence of any of the catalysts of claims 8-9.